

1 WHAT IS CLAIMED IS:

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3 1. Conductive metal particles having a number
4 average particle diameter of 5 to 100 μm , a BET specific
5 surface area of 0.01×10^3 to $0.7 \times 10^3 \text{ m}^2/\text{kg}$, a sulfur
6 element content of at most 0.1% by mass, an oxygen
7 element content of at most 0.5% by mass and a carbon
8 element content of at most 0.1% by mass.

1 2. The conductive metal particles according to
2 Claim 1, wherein the coefficient of variation of the
3 particle diameter is at most 50%.

1 3. The conductive metal particles according to
2 Claim 1, wherein the saturation magnetization of the
3 particles is at least 0.1 Wb/m^2 .

1 4. Conductive composite metal particles obtained
2 by coating the surfaces of the conductive metal
3 particles according to Claim 1 with a high-conductive
4 metal.

1 5. The conductive composite metal particles
2 according to Claim 4, wherein the thickness t of the
3 coating layer of the high-conductive metal, which is
4 calculated out in accordance with the following
5 numerical expression, is at least 10 nm:

6
$$t = [1/(S_w \cdot \rho)] \times [N/(1 - N)]$$

7 wherein t is the thickness (nm) of the coating layer of
8 the high-conductive metal, S_w is the BET specific
9 surface area (m^2/kg) of the conductive metal particles,
10 ρ is a specific gravity (kg/m^3) of the high-conductive
11 metal, and N is a ratio of a weight of the coating layer
12 of the high-conductive metal to a weight of the
13 conductive composite metal particles.

1 6. The conductive composite metal particles
2 according to Claim 5, wherein the high-conductive metal
3 is gold.

1 7. The conductive composite metal particles
2 according to Claim 5, wherein the content of the high-
3 conductive metal in each surface layer portion of the
4 conductive composite metal particles is at least 50% by
5 mass.

1 8. The conductive composite metal particles
2 according to Claim 5, wherein the BET specific surface
3 area of the conductive composite metal particles is 0.01
4 $\times 10^3$ to $0.7 \times 10^3 m^2/kg$.

1 9. The conductive composite metal particles
2 according to Claim 8, wherein the composite metal
3 particles are obtained by coating the surfaces of the

4 conductive metal particles whose saturation
5 magnetization is at least 0.1 Wb/m^2 with the high-
6 conductive metal, and the electric resistance value R as
7 measured in the following manner is at most 1Ω :
8 Electric resistance value:

9 A paste composition is prepared by kneading 0.6 g
10 of the conductive composite metal particles with 0.8 g
11 of liquid rubber, the paste composition is arranged
12 between a pair of electrodes each having a diameter of 1
13 mm and arranged so as to be opposed to each other at a
14 clearance of 0.5 mm , a magnetic field of 0.3 T is
15 applied to this pair of electrodes, and the pair of
16 electrodes are left to stand in this state until the
17 electric resistance value between the pair of electrodes
18 is stabilized, thereby measuring an electric resistance
19 value at this time.

1 10. A conductive paste composition comprising the
2 conductive composite metal particles according to Claim
3 3 or 9.

1 11. A conductive sheet comprising the conductive
2 composite metal particles according to Claim 3 or 9 in
3 an organic polymeric substance.

1 12. A circuit board comprising a conductor
2 containing the conductive composite metal particles

3 according to Claim 3 or 9 in an organic polymeric
4 substance.

1 13. A conductive connection structure connected by
2 a connecting member formed by the conductive paste
3 composition according to Claim 10.

1 14. A conductive connection structure connected
2 through the conductive sheet according to Claim 11.

1 15. An electrical inspection apparatus for circuit
2 devices, comprising the conductive sheet according to
3 Claim 11, wherein electrical connection to electrodes to
4 be inspected of a circuit device to be inspected is
5 achieved through the conductive sheet.